CLAIMS

1. A fuel-cell flowfield plate for use abutting an electrode plate in a fuel cell and in operation conducting reactant to an electrode plate and conducting liquid reaction product from the electrode plate, including first and second reactant channels on the surface thereof, through which channels the reactant flows when the plate is in use, each said channel having an inlet and an outlet; and lands that bound and separate the channels and that in use abut the electrode plate;

characterized in that:

the plate has a duct interconnecting the first and second channels, the duct having two duct end openings, a first duct end opening located at a position along the length of the first channel between the first-channel inlet and outlet, and a second duct end opening located at a position along the length of the second channel between the second-channel inlet and outlet, whereby the duct provides a fluid passage between the first and second channels, and wherein, in the event of whole or partial blockage of either of said channels by liquid reaction product, a consequent channel-flow velocity differential between the first channel in the vicinity of the first duct end opening and the second channel in the vicinity of the second duct end opening tends to promote fluid flow via the duct from the channel having the lower channel-flow velocity to the channel having the higher channel-flow velocity, thereby tending to eliminate or reduce the blockage.

2. The flowfield plate of Claim 1, wherein the duct interconnects the first and second channels in the vicinity of their outlets.

3. The flowfield plate of Claim 2, further comprising one or more additional ducts upstream of the first-mentioned duct, each said additional duct having two duct end openings one located at a selected position along the length of the first channel

between the first-channel inlet and outlet and the other located at a corresponding position along the length of the second channel between the second-channel inlet and outlet, each said selected position being spaced from every other said selected position so as to provide a spaced sequence of ducts along the channels.

4. The flowfield plate of Claim 1, wherein the first and second channels are of substantially the same length and of substantially the same cross-section throughout most of their length.

5. The flowfield plate of Claim 1, wherein the minimum cross-section of the duct is less than the minimum cross-sections of the channels in the vicinity of the duct.

6. The flowfield plate of Claim 1, further comprising a venturi associated with each duct end opening, located in-line in the respective channel, for, in use, increasing channel-flow velocity across the duct end opening.

7. The flowfield plate of Claim 6, wherein each duct end opening is located in the vicinity of the narrowest portion of the associated venturi.

8. A fuel-cell flowfield plate for use abutting an electrode plate in a fuel cell and in operation conducting reactant to an electrode plate and conducting liquid reaction product from the electrode plate, including pairs of neighboring first and second reactant channels on the surface thereof, through which channels the reactant flows when the plate is in use, each said channel having an inlet and an outlet; and lands that bound and separate the channels and that in use abut the electrode plate;

characterized in that for each channel pair:

the plate has a duct interconnecting the first and second channels thereof, the duct having two duct end openings, one duct end opening located at a position along the

length of the first channel between the first-channel inlet and outlet, and the other duct end opening located at a position along the length of the second channel between the second-channel inlet and outlet, whereby the duct provides a fluid passage between the first and second channels, and wherein, in the event of whole or partial blockage of either of said channels by reaction product, a consequent channel-flow velocity differential between the region upstream of the blockage and the other channel in the vicinity of the respective duct end opening tends to promote fluid flow via the duct from the blocked channel having the lower channel-flow velocity to the unblocked channel having the higher channel-flow velocity, thereby tending to eliminate or reduce the blockage.

9. The flowfield plate of Claim 8, wherein the minimum cross-section of the duct is less than the minimum cross-sections of the channels in the vicinity of the duct.

10. The flowfield plate of Claim 8, further comprising a venturi associated with each duct end opening, located in-line in the respective channel, for, in use, increasing channel-flow velocity across the duct end opening.

11. The flowfield plate of Claim 10, wherein each duct end opening is located in the vicinity of the narrowest portion of an associated venturi.

12. A fuel-cell flowfield plate for conducting reactant to an electrode plate and conducting reaction-product from the electrode plate, the flowfield plate comprising:

a) at least two reactant channels on the surface of the flowfield plate, a first channel and a second channel, through which a reactant flows when in use, each channel having an inlet and an outlet;

b) lands that bound the channels and that in use abut an electrode plate;

c) a duct having two duct end openings, a first duct end opening located at a position along the length of the first channel between the first-channel inlet and outlet, and a second duct end opening located at a position along the length of

the second channel between the second-channel inlet and outlet, whereby the duct provides a fluid passage between the first and second channels; and

d) a venturi associated with each duct end opening, located in-line in the respective channel, for, in use, increasing channel-flow velocity across the duct end opening;

and wherein, in use, in the event of whole or partial blockage of either of said channels by liquid reaction product, a consequent channel-flow velocity differential between the first channel in the vicinity of the first duct end opening and the second channel in the vicinity of the second duct end opening tends to promote fluid flow via the duct from the channel having the lower channel-flow velocity to the channel having the higher channel-flow velocity, thereby tending to eliminate or reduce the blockage.

13. The flowfield plate of Claim 12, wherein the minimum cross-section of the duct is less than the minimum cross-sections of the channels in the vicinity of the duct.

14. The flowfield plate of Claim 12, wherein each duct end opening is located in the vicinity of the narrowest portion of an associated venturi.